CLAIMS

1. An interface device for interfacing a user's input with a computer, the interface device comprising:

a mechanical input device adapted to transform a mechanical input operation of the user into an input signal for input into the computer, said mechanical input device having at least one movable element adapted to be moved by the user to perform the input operation;

an electrical generator mechanically coupled to said at least one moveable element to generate electrical energy in response to the input operation being performed; and

an electrical coupler adapted to electrically couple said electrical generator to a rechargeable battery for recharging said battery with said electrical energy.

2. The interface device of claim 1, wherein said at least one movable element comprises a wheel, said wheel adapted to be rotatable about a wheel axle by a digit of the user, and wherein said generator is adapted to be mechanically coupled to said wheel axle.

3. The interface device of claim 1, wherein said at least one movable element comprises a ball disposed in a housing and adapted to be rolled on a planar workspace.

4. The interface device of claim 1, wherein said at least one movable element comprises a ball disposed in a housing of the computer and adapted to be rolled by a digit of the user.

5. The interface device of claim 3, wherein said ball is magnetized and said generator comprises a winding into which a voltage is induced upon said ball being rolled.

6. The interface device of claim 1, wherein said generator comprises an electro-magnetic device adapted to convert a rotation of said wheel axle for a pre-defined step angle into a pulse of electrical energy.

7. The interface device of claim 1, wherein said generator comprises a step motor winding configuration.

8. The interface device of claim 1, wherein said battery is adapted for pulse charging with pulses of electrical energy.

9. The interface device of claim 6, further comprising a filter adapted to smooth pulses of electrical energy before application to said battery.

10. The interface device of claim 1, further comprising a user manipulandum adapted to be moveable in two degrees of freedom in a planar workspace with respect to a ground surface, said user manipulandum carrying at least said mechanical input device and said electrical energy generator.

11. The interface device of claim 10, wherein said user maniupulandum is adapted to carry said battery and a wireless transmitter adapted to wirelessly transmit an input signal to the computer.

12. The interface device of claim 10, wherein said user manipulandum further comprises a cable adapted to transmit said input signal and electrical energy to the computer.

13. The interface device of claim 1, wherein said mechanical input device is adapted to be integrated into a housing of the computer.

14. The interface device of claim 1, further comprising electrical circuitry located in the device for deriving the input signal, the electrical circuitry having a power supply terminal including a connection to a terminal adapted to be connected to an electrode of the battery.

15. A computer system comprising:

a processor;

a mechanical input device adapted to transform a mechanical input operation of a user to an input signal for said processor, said mechanical input device having at least one movable element adapted to be moved by the user to perform an input operation;

an electrical energy generator arranged to be mechanically coupled to said at least one moveable element and arranged to generate electrical energy upon said input operation being performed; and

a rechargeable battery arranged to be electrically coupled to said generator for recharging by electrical energy.

16. The computer system of claim 15, wherein said at least one moveable element is adapted to be rotatably attached to a housing of the computer system.

17. The computer system of claim 15, further comprising electrical circuitry located in the device for deriving the input signal, the electrical circuitry having a power supply terminal including a connection to a terminal adapted to be connected to an electrode of the battery.

18. A method of recharging a battery, the method comprising:

performing a mechanical input operation by applying mechanical energy to a moveable element to move the moveable element a distance;

generating an input signal for a computer in response to the movement of the moveable element;

transforming the movement of the moveable element into electrical energy; and

recharging a battery that powers circuitry for deriving the input signal with the electrical energy.

19. The method of claim 18, wherein the mechanical input operation comprises rotating a wheel about a wheel axle to which an electrical energy generator is coupled.

20. The method of claim 19, wherein the rotation of the wheel comprises rotating in pre-defined step angles and generating a pulse of electrical energy for each step angle of rotation.

21. The method of claim 20, further comprising smoothing the pulses of electrical energy before application to the battery.

22. The method of claim 18, wherein the mechanical input operation comprises rolling a ball on a planar workspace.

23. A cordless computer mouse comprising:

a battery;

a manually operable actuator arranged within the mouse; and

a transducer adapted to be electrically connected to said battery and mechanically connected to said manually operable actuator;

wherein said transducer is adapted to transduce kinetic energy of said manually operable actuator into electrical energy for charging the battery.

24. The cordless computer mouse according to claim 23, wherein said manually operable actuator comprises a ball arranged within the mouse and adapted to rotate upon the mouse being mechanically translated.

25. The cordless computer mouse according to claim 23, wherein said manually operable actuator comprises a wheel arranged within the mouse and adapted to rotate to navigate a user interface on a computer electrically connected to the mouse.

26. An interface device for interfacing a user's input with a computer, the interface device comprising:

a mechanical input device adapted to transform a mechanical input operation of the user into an input signal for input into the computer, said mechanical input device having at least one movable element adapted to be moved by the user to perform the input operation;

an electrical generator mechanically coupled to said at least one moveable element to generate electrical energy in response to the input operation being performed; and

an electrical coupler for causing the generate electrical energy to power electrical circuitry for deriving the input signal.

27. The interface device of claim 26, wherein the electrical circuitry includes a wireless transmitter for coupling an indication of the signal to the computer.